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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/732,391	12/07/2000	James D. Spurgeon	32040US1	9867

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EXAMINER

WHITE, MICHAEL W

ART UNIT PAPER NUMBER

3676

DATE MAILED: 07/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/732,391

Applicant(s)

SPURGEON, JAMES D.

Examiner

Michael W White

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6, 8-9, 11-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donley (USPN 3,560,004) in view of Jenkins (USPN 2,464,136). Donley, Fig. 1, discloses a sealing system for a rotating machine having a stationary element 1 and a drive element 3 rotationally connected to stationary element 1. The sealing system comprises a plate 36 having a bearing surface and being connected to stationary element 1. The sealing system further comprises a sealing assembly 6 comprising a resilient bellows 30, 31 and a bearing surface. Bellows 30,31 provides a force that causes the bearing surface of the sealing assembly 6 to bear on the bearing surface of plate 36 to form a dynamic seal. Donley, Fig. 1, discloses a sealing system substantially the same as Applicant's sealing system with the exception of bellows 30,31 having a plurality of corrugations. Jenkins, Figs. 1-3, discloses a bellows seal having a bellows 44 (similar to Jenkins reference number 29) that "may possess as many folds as operating conditions may require" (Jenkins, Col. 2, Lines 44-45). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide Donley with a

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bellows having a plurality of corrugations, as taught by Jenkins to be a matter of choice in engineering design.

Referring to Claim 2, Donley, Fig. 1, as modified, discloses a sealing assembly 6 further comprising a thrust plate 35 attached to resilient bellows 30,31. The thrust plate 35 provides the bearing surface of sealing assembly 6.

Referring to Claim 3, Donley, Fig. 1, as modified, discloses a resilient bellows further comprising a collar 33 attached to thrust plate 35.

Referring to Claim 4, Donley, Fig. 1, as modified, further discloses a static sealing element disposed within a gap provided between the collar 33 and the thrust plate 35. Static sealing is achieved through mechanical contact between annular support member 33 and the opposing surface of thrust plate 35, which is composed of a low-friction material such as polytetrafluorethylene.

Referring to Claim 5, Donley, Fig. 1, as modified, discloses a sealing system further comprising a mounting element 38 that connects plate 36 to stationary element 1.

Referring to Claim 6, Donley, Fig. 1, as modified, discloses a resilient bellows 30,31 comprising of at least one corrugation.

Referring to Claims 8, 9, and 11, Donley, Fig. 1, as modified, discloses a driven element 5 operatively associated with the drive element 3. This element, which does not form a part of the present invention, may be an impeller, mixer, stirrer, or any other element designed for rotary movement with rotation of the shaft 3 (Donley, Col. 2, Lines 21-24).

Referring to Claims 12-14, Donley, Fig. 1, as modified, discloses a seal chamber 2, defined by stationary element 1, that encloses sealing assembly 6. A seal gland 15,16 closes an area of seal chamber 2.

Referring to Claim 15, Donley, Fig. 1, as modified, discloses a sealing system for a rotating machine having a stationary element 1 and a drive element 3 rotationally connected to stationary element 1. The sealing system comprises a drive plate 37 having a bearing surface and being rigidly connected to drive element 3, a stationary plate 36 having a bearing surface and being connected to stationary element 1, and a sealing assembly 6 having a resilient bellows 30, 31, a first bearing surface, and a second bearing surface. Bellows 30,31 provides a force that causes the first bearing surface of sealing assembly 6 to bear on the bearing surface of drive plate 37 to form a first dynamic seal and causes the second bearing surface of sealing assembly 6 to bear on the bearing surface of drive plate 36 to form a second dynamic seal.

Referring to Claim 17, Donley, Fig. 1, as modified, discloses a sealing system for a rotating machine having a stationary element 1 and a drive element 3 rotationally connected to stationary element 1. The sealing system comprises a plate 36 having a bearing surface and being connected to stationary element 1. The sealing system further comprises a sealing assembly 6 comprising a resilient bellows 30, 31 and a bearing surface. Bellows 41 (Jenkins, Fig. 3) is a unitary element, and provides a force that causes the bearing surface of the sealing assembly 6 to bear on the bearing surface of plate 36 to form a dynamic seal.

3. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donley in view of Jenkins (USPN 2,464,136), and further in view of Darnell (USPN 3,601,413).

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Donley, Fig. 1, as modified, discloses a sealing system substantially the same as Applicant's sealing system with the exception of at least one of the plate and thrust plate being made of graphite. Darnell, Figs 2-3, discloses a thrust plate 70 comprised of a graphite blank (see Darnell, Col. 3, Line 45) and a plate 74 comprised of a graphite blank (see Darnell, Col. 4, Line 1). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Donley to include a graphite plate and a graphite thrust plate, as disclosed by Darnell, for the purpose creating a self-lubricating sealing surface.

Referring to Claim 16, Donley, Fig. 1, as modified, discloses a sealing system comprising a drive plate 37, comprising graphite and a bearing surface, being rigidly connected to a drive element 3. A stationary plate 36, comprising graphite and a bearing surface, is rigid connected to a stationary element 1. The sealing system includes a sealing assembly 6 having a resilient corrugated bellows 30,31 providing a force and having first and second collars, a first thrust plate 35 attached to the first collar 34 and providing a first bearing surface, and second thrust plate 35 attached to the second collar 33 and providing a second bearing surface. Static seals are achieved through mechanical contact between annular support members 33,34 and the opposing surfaces of thrust plates 35, which are composed of a low-friction material such as polytetrafluorethylene. A drive plate mounting element 40 connects the drive plate 37 to drive element 3, while a stationary plate mounting element 38 connects the stationary plate 36 to stationary element 1. The first and second thrust plates 35 further comprise graphite. The force of bellows 30,31 causes the first bearing surface of sealing assembly 6 to bear on the bearing surface of the drive plate to form a first dynamic seal comprising a first sealing and lubricating graphite layer. The force of bellows 30,31 causes the second bearing surface of sealing assembly

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6 to bear on the bearing surface of the stationary plate to form a second dynamic seal comprising a second sealing and lubricating graphite layer.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Donley in view of Jenkins (USPN 2,464,136), and further in view of Merrifield (USPN 4,819,948). Donley, as modified, discloses a sealing system substantially the same as Applicant's sealing system with the exception of a driven element comprising a propeller. Merrifield, Col. 3, Lines 45-48, discloses a sealing system that can be used in a variety of applications, for example, "a propeller shaft of a vessel, or for an impeller in a liquid different from water". Donley teaches the driven element "does not form a part of the present invention" (Donley, Col. 2, Line 22) and that the driven element could be "any other element designed for rotary movement with rotation of the shaft 3" (Donley, Col. 2, Line 23-24). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Donley, in view of Merrifield's disclosure, to include a propeller as a possible driven element for the sealing system.

Response to Arguments

5. Applicant's arguments with respect to Claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael W White whose telephone number is 703-305-0603. The examiner can normally be reached on Monday-Thursday from 0730 to 1700. The examiner can also be reached on alternative Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight, can be reached on (703) 308-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-308-1113.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

MWW
11 JUL 2002



Anthony Knight
Supervisory Patent Examiner
Art Unit 3676